Space Weather Forecast

Issued on Saturday, 14 October 2023 at 01:13 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Current fast wind from a coronal hole gradually reducing into the weekend. Rising chance of Moderate-class flares. Further coronal hole fast wind likely to arrive early next week, with a Chance of G1/Minor Storm.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity has been Low in the past 24 hours, with only minor Common-class flares. There are currently up to six sunspots on the visible disc, which are all relatively small, simple and currently appear to be mostly stable. No Earth-directed Coronal Mass Ejections (CMEs) have been observed in the past 24 hours.

Solar Wind / Geomagnetic Activity: Solar winds started in a slow regime, but showed a very marked progression into an increased density region, termed a 'Co-rotating Interacting Region' (CIR) that often precedes stronger coronal hole fast wind regimes. This feature developed in earnest from around 13/0300UTC. This is most likely to be the substantially delayed fast wind.
The solar wind speed rose from 300 to 510km/s during the period. The magnetic field was initially weak, but increased to Strong levels, peaking after 13/0800UTC, although the all important north-south component was fortunately mostly positive, with some minor deviations to negative values. The net effect of the above solar wind measures was initially quiet geomagnetic activity, but rising in the current UTC morning, albeit remaining below Minor Geomagnetic Storm G1 throughout.

Energetic Particles / Solar Radiation: No solar radiation storms were observed.

Four-Day Space Weather Forecast Summary

Solar Activity: There is a slightly rising Chance of Moderate-class flares through the four-day period as a result of eastern solar horizon arrivals into the UTC weekend.

Solar Wind / Geomagnetic Activity: No CMEs feature in the current forecast.

The current fast wind from a coronal hole is likely to wane into the UTC weekend, although there remains a chance of Active intervals early on Day 1 (14 Oct), with reducing Slight Chance of a G1/minor storm interval. Becoming mainly Quiet again as the UTC weekend progresses. By the new working week another coronal hole fast wind may arrive by Day 3 (16 Oct), leading to a Chance of G1/Minor Storm.

Energetic Particles / Solar Radiation: No solar radiation storms are expected.

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	20	1	30	10
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	30	40	40	40
Very Active	R3 to R5 X	No	1	5	5	5

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	5	5	5	5
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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